

## **REMARKS**

In the Final Office Action, the Examiner again rejected claims 1-5, 9-14, 16, and 18-20 under 35 U.S.C. §102(b) as being anticipated by, or in the alternative, under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,947,140 to *Aardema et al.* or U.S. Patent No. 5,960,695 to *Aardema et al.* Also, the Examiner rejected claims 6-8, 15, and 17 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,947,140 to *Aardema et al.* or U.S. Patent No. 5,960,695 to *Aardema et al.* In maintaining the claim rejections in the previous Office Action dated September 17, 2004, the Examiner stated that “[t]he controller of Aardema et al clearly controls the flow either in an open loop or in a closed loop, based on one of a number of factors, including flow.” These claim rejections, however, are respectfully traversed for the following reasons.

Claim 1 recites a method for controlling hydraulic flow through a valve including for example, providing an adjustable gain to a difference between an estimated flow rate and a desired flow rate, and computing a command signal to actuate the valve based on the adjustable gain, the desired flow rate and the estimated flow rate through the valve. Claim 10 recites a system for controlling hydraulic flow through a valve including, among other elements, a flow controller having a compensator, the flow controller being configured to provide an adjustable gain to a difference between an estimated flow rate and a desired flow rate and to determine a command signal to an actuator based on the adjustable gain, the estimated flow rate and the desired flow rate through the valve. Claim 20 recites a machine including the system of claim 10. These method, system, and machine are not taught or suggested by the cited references.

Both U.S. Patent Nos. 5,947,140 and 5,960,695 to *Aardema et al.* disclose a system for controlling an independent metering valve in a hydraulic circuit. FIG. 5 of either *Aardema et al.* illustrates a meter portion of a single valve controller. The meter block 410 receives a flow signal 315, a pressure drop signal 335, and an off set signal 355 for metering a valve 105 and determines a displacement command 425. The meter block 410 includes a conversion operator 510 that receives the flow signal 315 and computes a relative displacement 515 according to an equation. In the embodiment shown in FIG. 5, the relative displacement 515 is computed based on a flow, a pressure drop, a coefficient of discharge, an area gain, a fluid density, a conversion constant.

Either *Aardema et al.*, however, does not teach or suggest a method including providing an adjustable gain to a difference between an estimated flow rate and a desired flow rate, and computing a command signal to actuate the valve based on the adjustable gain, the desired flow rate and the estimated flow rate through the valve, or a system including a flow controller having a compensator, the flow controller being configured to provide an adjustable gain to a difference between an estimated flow rate and a desired flow rate and to determine a command signal to an actuator based on the adjustable gain, the estimated flow rate and the desired flow rate through the valve.

As described at page 7, paragraph 27, in this patent application, the adjustable gain is provided by a compensator to improve accuracy of a feed back loop process and adds dynamics to the process. The meter block 410 in *Aardema et al.* does not allow implementation of such an adjustable gain. The area gain  $W$  in the conversion operator 510 is constant, and it is not an adjustable gain that is provided to a difference between an estimated flow rate and a desired flow rate.

For the aforementioned reasons, neither *Aardema et al.* teaches or suggests the method of claim 1, the system of claim 10, and the machine of claim 20, and the rejection of those claims under 35 U.S.C. §102(b) or 35 U.S.C. §103(a) should be withdrawn in favor of allowance of the claims.

Claims 2-9 and 11-19 depend from one of claims 1 and 10. Therefore, those claims should also be allowed at least by reason of their dependency from claim 1 or 10.

Applicants respectfully request that this Amendment under 37 C.F.R. § 1.116 be entered by the Examiner, placing claims 1-20 in condition for allowance. Applicants submit that the proposed claim amendments do not raise new issues or necessitate the undertaking of any additional search of the art by the Examiner, since all of the elements and their relationships claimed were either earlier claimed or inherent in the claims as examined. Therefore, this Amendment should allow for immediate action by the Examiner.

Furthermore, Applicants respectfully point out that the final action by the Examiner presented some new arguments as to the application of the art against Applicant's invention. It is respectfully submitted that the entering of the Amendment would allow the Applicants to reply to the final rejections and place the application in condition for allowance.

Finally, Applicants submit that the entry of the amendment would place the application in better form for appeal, should the Examiner dispute the patentability of the pending claims.

Applicants submit that this claimed invention, as amended, is neither anticipated nor rendered obvious in view of the prior art references cited against this application. Applicants therefore request the entry of this Amendment, the Examiner's reconsideration and reexamination of the application, and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

FINNEGAN, HENDERSON, FARABOW,  
GARRETT & DUNNER, L.L.P.

A handwritten signature in black ink, appearing to read 'Naoki Yoshida', written over the printed name of the signatory.

Dated: June 8, 2004

By: Naoki Yoshida  
Reg. No. 48,108